Introduction to Tunnel Engineering
Presented by the Department of Mining Engineering, University of Pretoria

3 CPD points from ECSA

The purpose of the Introduction to Tunnel Engineering short course is to offer you with exposure to the different tunnelling development methods and technologies, the latest equipment available and selection criteria. Environmental Considerations and Tunnel Project Management are an integral part of the course.
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Course content

Introduction to tunnelling
- History
- New Austrian Tunnelling Method (NATM), conventional development with drilling and blasting and Tunnel Boring Machine (TBM)
- Comparison between mining and underground construction industries

Investigation and ground characterisation
- Hazards in tunnelling
- Investigation/Geology
- Classification and characterisation of rock and rock mass

Tunnel layout
- Definitions
- Cross sections
- Design procedure
- Project development
- Ventilation
- Environmental aspects
- Construction sequence

TBM tunnelling
- TBM machines
- Selection
- Necessity for hyperbaric support
- Evaluation

Management
- Principles of construction contracts
- Site organisation

Learning outcomes

After successfully completing this course, you will have an understanding of
- the different types of tunnels, excavation and development methods
- the necessity for diverse skill participation
- essential facilities and infrastructure in the case of an emergency
- exposure to environmental impact and essential considerations in planning, and
- materials used and hazards thereof.

Who should enrol?

This course is ideal for you if you are a civil and geotechnical engineer or engineering geologists who has a tertiary or technical background and are exposed to or considering a specialisation in tunnelling. Also, if you are involved in planning, design and consultancy of underground projects could benefit.

Admission Requirements

Delegates should at least have a BSc. Mining, Civil Engineering, and Geology. Persons who have actual experience in underground civil and mining engineering but who have no tertiary qualification (Level 6). Final Year students of Mining and Civil Engineering.

Course fees

R 10 605.00 per delegate (VAT incl.)

Accreditation and certification

Enterprises University of Pretoria (Pty) Ltd is wholly owned by the University of Pretoria. The University is registered as a multipurpose, public training provider in the higher education and training band. Delegates who successfully complete a course and comply with the related assessment criteria are awarded certificates by the University in recognition of their professional skills development.

Registration and enquiries

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Course presenter

Christian Heili (M.Sc., MBA, M.Eng)
Christian Heili Professional Engineer registered with ECSA, mining engineering background with thirty four years of wide ranging operational, project management and business experience within the mining/tunneling industry.